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PTO/SB/05 (4/98)
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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	003869.P001C
First Inventor or Application Identifier	Stephen C. Roderick
Title	Method, Apparatus and System for Improved Content Management and Delivery
Express Mail Label No.	EL034435616US

APPLICATION ELEMENTS
See MPEP chapter 600 concerning utility patent application contents

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

1. ☒ Fee Transmittal Form
(Submit an original, and a duplicate for fee processing)

2. ☒ Specification [*Total Pages* 38]
(preferred arrangement set forth below)
- Descriptive title of the Invention
- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to Microfiche Appendix
- Background of the Invention
- Brief Summary of the Invention
- Brief Description of the Drawings (*if filed*)
- Detailed Description
- Claim(s)
- Abstract of the Disclosure

3. ☒ Drawing(s) *(35 U.S.C. 113)* [*Total Sheets* 8]

4. Oath or Declaration [*Total Pages* 3]
a. ☐ Newly executed (original copy)
b. ☒ Copy from a prior application (37 C.F.R. § 1.63(d)) *(for continuation/divisional with Box 16 completed)*
i. ☐ DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR §§ 1.63(d)(2) and 1.33(b).

5. ☐ Microfiche Computer Program *(Appendix)*

6. Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)
a. ☐ Computer Readable Copy
b. ☐ Paper Copy (identical to computer copy)
c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

7. ☐ Assignment Papers (cover sheet & document(s))
8. ☐ 37 C.F.R. § 3.73(b) Statement *(when there is an assignee)* ☐ Power of Attorney
9. ☐ English Translation Document *(if applicable)*
10. ☐ Information Disclosure Statement (IDS)/PTO - 1449 ☐ Copies of IDS Citations
11. ☐ Preliminary Amendment
12. ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
13. ☐ *Small Entity Statement(s) ☒ Statement filed in prior application, Status still proper and desired
14. ☐ Certified Copy of Priority Document(s)
(if foreign priority is claimed)
15. ☐ Other: .....

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16. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in a preliminary amendment:*
☒ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No: 09/228,259

Prior application Information: Examiner Feild, J. *Group/Art Unit:* 2776

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

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Name	BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP				
Address	12400 Wilshire Boulevard, Seventh Floor				
City	Los Angeles	*State*	California	*Zip Code*	90025
Country	U.S.A.	*Telephone*	(503) 684-6200	*Fax*	(503) 684-3245

Name (Print/Type)	Donna Jo Coningsby, Reg. No. 41,684		
Signature	Donna Jo Coningsby	*Date*	09/18/00

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See 37 C.F.R §§ 1.27 and 1.28.

TOTAL AMOUNT OF PAYMENT ($) 399.00

Complete if Known	
Application Number	
Filing Date	September 18, 2000
First Named Inventor	Stephen C. Roderick
Examiner Name	Feild, J.
Group/Art Unit	2776
Attorney Docket No.	003869.P001C

METHOD OF PAYMENT (check one)

1. ☐ The Commissioner is hereby authorized to charge indicated fees:
2. ☒ The Commissioner is hereby authorized to credit any over payments to:

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2. ☒ Payment Enclosed:
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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	690	201	345	Utility filing fee	$345.00
106	310	206	155	Design filing fee	
107	480	207	240	Plant filing fee	
108	690	208	345	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1) ($) 345.00

2. EXTRA CLAIM FEES

			Extra Claims		Fee from below		Fee Paid
Total Claims	26	- 20 =	6	X	9.00	=	$54.00
Independent Claims	3	- 3 =	0	X	39.00	=	
Multiple Dependent						=	

***or number previously paid, if greater, For Reissues, see below*

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	78	202	39	Independent claims in excess of 3
104	130	204	130	Multiple Dependent claim, if not paid
109	78	209	39	**Reissue independent claims over original patent
110	18	210	9	**Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 54.00

FEE CALCULATION (continued)

3. ADDITIONAL FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet.	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for reexamination	
112	920*	112	920*	*Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	*Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for response within first month	
116	380	216	190	Extension for response within second month	
117	870	217	435	Extension for response within third month	
118	1,210	218	680	Extension for response within fourth month	
128	1,850	228	925	Extension for response within fifth month	
119	300	219	150	Notice of Appeal	
120	300	220	150	Filing a brief in support of an appeal	
121	260	221	130	Request for oral hearing	
138	1,510	138	1510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,210	241	605	Petition to revive - unintentional	
142	1,210	242	605	Utility issue fee (or reissue)	
143	430	243	215	Design issue fee	
144	580	244	290	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Petitions related to provisional applications	
126	240	126	240	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	790	246	395	Filing a submission after final rejection (37 CFR 1.129(a))	
149	790	249	395	For each additional invention to be examined (37 CFR 1.129(b))	

Other fee (specify) _____
Other fee (specify) _____

* Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($)

SUBMITTED BY

				Complete (if applicable)	
Typed or Printed Name	Donna Jo Coningsby			Reg. Number	41,684
Signature	Donna Coningsby	Date	09/18/00	Deposit Account User ID	02-2666

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Trans express mail no. EL034435616US

Applicant or Patentee: Stephen C. Roderick
Serial or Patent No.: Not Yet Assigned
Filed or Issued: January 11, 1999
Attorney's Docket No. 03869.P001
For: METHOD, APPARATUS AND SYSTEM FOR IMPROVED CONTENT MANAGEMENT AND DELIVERY

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS
37 CFR 1.9 (f) and 1.27(c) - - SMALL BUSINESS CONCERN

I hereby declare that I am:

[XX] the owner of the small business concern identified below:
[____] an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN: GOHOME NETWORKS, INC.
ADDRESS OF CONCERN: 875-A NW GRANT AVENUE, CORVALLIS, OR 97330

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby certify that to the best of my knowledge and belief rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention entitled METHOD, APPARATUS AND SYSTEM FOR IMPROVED CONTENT MANAGEMENT AND DELIVERY
by inventor(s) Stephen C. Roderick
described in

[XX] the specification being filed herewith
[____] application serial no. _____, filed _____
[____] patent no. _____, issued _____

and I have reviewed the document that evidences the conveyance of those rights. That document

[XX] is being filed herewith.
[____] was recorded in the Patent and Trademark Office on _____, 19__ at reel _____ and frame _____.

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9(d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a non-profit organization under 37 CFR 1.9(e). NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

NAME: _____
ADDRESS: _____
[____] Individual [____] Small Business Concern [____] Non-Profit Organization
NAME: _____
ADDRESS: _____
[____] Individual [____] Small Business Concern [____] Non-Profit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING: STEPHEN C. RODERICK
TITLE OF PERSON OTHER THAN OWNER: President
ADDRESS OF PERSON SIGNING: 3142 NW AUTUMN, CORVALLIS, OR 97330
SIGNATURE: _____ DATE: 1/11/99

Our Ref.: 03869.P001C

APPLICATION FOR UNITED STATES LETTERS PATENT

FOR

METHOD, APPARATUS AND SYSTEM FOR IMPROVED CONTENT MANAGEMENT AND DELIVERY

Inventor(s): **Stephen C. Roderick**

Prepared by:

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"Express Mail" label number EL034435616US

Date of Deposit *September 18, 2000*

METHOD, APPARATUS AND SYSTEM FOR IMPROVED CONTENT MANAGEMENT AND DELIVERY

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BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to the field of data processing over data networks and, in particular, to a method, apparatus and system for improved content management and delivery.

2. Background Information

As computer technology has evolved, so too has the use of data networks to communicatively couple computer systems together enabling them to communicate with one another. Those skilled in the art will appreciate that data networks may be configured in a number of alternative network topologies, employing any number of alternative communication protocols. From small peer-to-peer networks, to local area networks (LAN),

wide area networks (WAN) and enterprise networks (sometimes referred to as an intranet), to global data networks. One of the more popular of such global data networks is colloquially referred to as the Internet, an Internetworking of governmental, educational and commercial networks and servers throughout the world.

Once the domain of scholars and computer researchers, the introduction and acceptance of the HyperText Markup Language (HTML) and the HyperText Transfer Protocol (HTTP) associated with the World Wide Web (WWW) initiative effectively opened the Internet to anyone with an appropriately configured computer system. With the increased accessibility brought about with the WWW, data networks such as the Internet have evolved into a limitless collection of information for those with the computer savvy to access them.

One of the criticisms of the Internet, in particular, is that the wealth of information that is theoretically available on the Internet is not easily identified and retrieved by a typical user. Until recently, this difficulty in accessing the eclectic collection of information available on the Internet has not really been a problem, as many netizens[1] rely on search engines and the like to locate information of interest. Simplistically speaking, search engines search the meta-tags and text of a number of web pages in an effort to identify the information of interest. Until recently, the use of such search engines has proven acceptable as a means of identifying information on the web.

Recently, however, the Internet has evolved to support electronic commerce, sometimes referred to as e-commerce. Electronic commerce sites on, for example, the

Internet are presented in the form of publicly accessible web pages which place the stock, availability and pricing information of their products online. A typical e-commerce site may be thought of as being comprised of at least two parts, a first part which is comprised of the HTML document to create the graphical user interface (GUI) on the Internet, and a second part comprised of a database housing the product information, i.e., stock/availability, and pricing information. The GUI front end provides the user with a means of searching for product information, stock or availability, and pricing by entering search terms or a query list, which is then used to access and retrieve the appropriate information from the database for display to the user. Accordingly, it typically requires at least two searches, often more, to identify the particular information of interest on the Internet. This makes it difficult, at best, for many netizens to find product information as it is often buried in databases hidden from search engines. One solution to make product information more readily accessible is to forego the product databases and have programmers generate HTML code for dedicated web pages for each product. One drawback of such a solution, however, is that substantial investments have been made to put together the current product databases. To simply forego using current product databases would be a costly solution, not to mention the substantial cost of generating dedicated web pages for each product. However, companies staking their commercial success on the e-commerce business paradigm will attest that the current difficulty conducting e-commerce is resulting in lost opportunity and unrealized profit for many e-commerce sites.

[1] Those skilled in the art will appreciate that a new vocabulary has evolved to describe the evolving sociology

Thus, an improved method, apparatus and system for identifying, managing and delivering information content, e.g., product information, is required, unencumbered by the deficiencies and inherent limitations commonly associated with data networks and the network devices of the prior art. It will be apparent to those skilled in the art, from the description to follow, that the present invention achieves these and other desired results.

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of the Internet, wherein a netizen is a citizen on the Internet, i.e., an Internet user.

SUMMARY OF THE INVENTION

In accordance with the teachings of the present invention, a method, apparatus and system for managing and delivering informational content over a data network is presented. In particular, in accordance with one embodiment of the present invention, an apparatus comprising a storage medium and a communicatively coupled processor are presented. The storage medium has stored therein a plurality of executable instructions which, when executed, implement an information server which, upon receiving a request including a resource identifier for an information page/directory that may or may not exist, constructs and issues queries to retrieve the requested information and dynamically generates instructions to create the requested information page for provision to a requesting client if the information page does not exist.

BRIEF DESCRIPTION OF DRAWINGS

The present invention will be described by way of exemplary embodiments, but not limitations, illustrated in the accompanying drawings in which like references denote similar elements, and in which:

Figure 1 illustrates a block diagram of an example data network incorporating the teachings of the present invention;

Figure 2 illustrates a block diagram of an example server incorporating the teachings of the present invention, in accordance with one embodiment of the present invention;

Figure 3 illustrates a flow chart of an example method for managing the availability of information content incorporating the teachings of the present invention;

Figure 4 illustrates a block diagram of an example server incorporating the teachings of the present invention, in accordance with an alternate embodiment of the present invention;

Figure 5 illustrates a flow chart of an example method for tracking the source of referrals to information sources in accordance with one aspect of the present invention;

Figure 6 graphically illustrates an example product database suitable for use in accordance with the teachings of the present invention;

Figure 7 graphically illustrates an example marketing report generated in accordance with one aspect of the present invention; and

Figure 8 illustrates a block diagram of a storage medium having stored therein executable instructions for implementing the teachings of the present invention, in accordance with an alternate embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

In the following description, various aspects of the present invention will be described. However, it will be apparent to those skilled in the art that the present invention may be practiced with only some or all aspects of the present invention. For purposes of explanation, specific numbers and configurations are set forth in order to provide a thorough understanding of the present invention. However, it will also be apparent to those skilled in the art that the present invention may be practiced without these specific details. In other instances, well known features are omitted or simplified for clarity.

Reference in the specification to "one embodiment" or "an embodiment" means that a particular feature, structure or characteristic described in connection with the embodiment is included in at least one embodiment of the present invention. Thus, the appearances of the phrase "in one embodiment" appearing in various places throughout the specification are not necessarily all referring to the same embodiment.

With reference to **Figure 1**, an operating environment within which the teachings of the present invention may be practiced will be developed more fully in accordance with the block diagram of example data network **100**. As provided in **Figure 1**, data network **100** is comprised of a plurality of clients, e.g., **102** and **112** that are communicatively coupled to a plurality of information sources, e.g., servers **108, 116** and **117**, and databases **110** and **118**, via one or more data networks, e.g., data network **106**, as shown. In one embodiment, data network **106** represents a global data network such as the Internet, while in alternate embodiments, data network **106** represents an enterprise network or an Intranet. In

accordance with the teachings of the present invention to be described more fully below, an information server enabled with the teachings of the present invention, e.g., server **108**, invokes an instance of an information server which, upon receiving a request including a resource identifier for an information page/directory that does not exist, constructs and issues one or more queries to accessible information resources to retrieve the requested information and dynamically generates instructions to create the requested information page for provision to the requesting client. In accordance with the teachings of the present invention, if the information page/directory identifier by the received request does exist, the requested information page is provisioned to the requesting client.

In one exemplary embodiment, to be developed more fully below, the resource identifier is comprised of an industry standard product identifier (ISPID), wherein the information server dynamically generates the instructions to create the requested information page to provision to the requesting client, in response to receiving a request from the client comprising the ISPID as the resource identifier for an information page that does not exist. Thus, those skilled in the art will appreciate that a server incorporating the teachings of the present invention for dynamically generating instructions to create an information page in response to receiving a request comprised of an industry standard product identifier, effectively place their entire inventory of products on the data network at uniquely addressable locations (e.g., web sites, web pages, etc.), without having to resort to multiple intermediate information pages generating common gateway interface (CGI) scripts, or the un-memorable, lengthy URLs commonly associated with the prior art. Accordingly, the

present invention enables a vendor to utilize the information contained in their current product databases, protecting the substantial investment made to generate such databases, while offering improved visibility of their product line to their current or potential customer base.

As shown in **Figure 1**, clients **102** and **112** can be any of a wide range of computing devices known in the art which enable a user to access information using a messaging protocol via data network **106**. In one embodiment, for example, clients **102** and **112** execute a browser application which supports communication with a remote server, e.g., server **108**, via data network **106** and gateway server **104**, while in other embodiments, the client is directly coupled to data network **106**. In one embodiment, the messaging protocol utilized is the HyperText Transfer Protocol (HTTP) and the information page is a web page. In another embodiment, the messaging protocol is the File Transfer Protocol (FTP), and the information page is a document file. In either instance, the request for the information page includes a document identifier comprised of the industry standard product identifier, without requiring the user to enter any additional language that is otherwise supported by the messaging protocol, e.g., query scripts and the like. In one embodiment, clients **102** and/or **112** are computer systems, while in an alternate embodiment, they are an electronic appliance, e.g., a webTV™ Internet Terminal available from Sony Electronics, Inc. of Park Ridge, NJ, that enables one to utilize the resources of data network **106** without the need of a full-featured computer system.

Each server **108**, **116** and **117** is typically a computer system which can be accessed by clients via data network **106** either directly, or through a firewall **114** or other gateway server. As used herein, each server incorporating the teachings of the present invention, e.g., server **108**, includes one or more information pages (e.g., HyperText Markup Language (HTML) compatible documents, or web-pages), which can be accessed via any of a number of appropriate messaging protocols for display by an appropriate user agent (e.g., browser) operating on a requesting client, e.g., client **102**. In accordance with the teachings of the present invention, to be described more fully below, a server incorporating the teachings of the present invention includes an agent which, upon receiving a request including an industry standard product identifier for an information page or directory that does not exist, constructs and issues commands or queries to search for and retrieve from accessible resources (e.g., databases) information corresponding to the product associated with the industry standard product identifier included in the received request, and generates executable instructions to create the requested information page for provision at the requesting client. In alternate embodiments, the ISPID is a multiple listing service (MLS) identifier for real estate, a vehicle identification number (VIN) identifier for automobiles, a stock-keeping unit (SKU) identifier for various manufactured products, or a universal identifier (UID) for other products. Thus, a merchant utilizing the teachings of the present invention may well use one of the above identified product codes, or variations thereof, to place information regarding their products on the internet, at uniquely addressable locations, without the need of generating individual information pages/directories for that information prior to receiving the

request for information. That is, the present invention enables a merchant to leverage their pre-existing information resources to dynamically create information pages for each of their products at uniquely addressable locations on a data network using their product code as the address.

As alluded to above, data network **106** is a combination of multiple conventional hardware components, including computer systems, routers, repeaters, gateways, and switches interconnected, potentially throughout the world, with wireline and wireless (e.g., satellite, terrestrial, and the like) communication connections. These hardware components are organized to provide multiple logical levels of networks, which route data from one computer system to another. According to one implementation, data is transferred between computer systems using the well-known Transmission Control Protocol/Internet Protocol (TCP/IP) protocol. Data is generally transferred between network elements in units commonly referred to as "packets" or "datagrams".

The communication links illustrated in **Figure 1** may be any of a wide range of conventional wireline and wireless communication media, and may be different for different clients **102**, hosts **108** and network devices **104**. For example, a communication link may be a cable, a fiber optic cable, or may represent a nonphysical medium transmitting electromagnetic signals in the electromagnetic spectrum. Additionally, a wireless communication link may also include any number of conventional routing or repeating devices, such as satellites or electromagnetic signal repeaters or basestations.

Having introduced the operating environment within which the teachings of the present invention may be practiced with reference to **Figure 1**, above, an example server incorporating the teachings of the present invention will now be developed with reference to **Figure 2**.

With reference to **Figure 2**, a block diagram of an example server incorporating the teachings of the present invention is depicted, in accordance with but one embodiment of the present invention. In accordance with the illustrated example embodiment of **Figure 2**, server **200** is shown comprising one or more processor(s) **202** and a storage medium/device **206** including executable instructions to implement information server **203** and mining agent **204** incorporating the teachings of the present invention. In certain embodiments, storage medium **206** also includes instructions to implement a statistical database **205** which is used to compile and maintain a statistical history of marketing effectiveness, as shown. In addition to the foregoing, server **200** also includes network interface **208** and input/output (I/O) ports **210** each communicatively coupled to processor(s) **202** as shown. Thus, in accordance with one embodiment of the present invention, server **200** may well be incorporated into data network **100** as one or more of servers **108, 116** and/or **117** facilitating the perception that an end user has direct access to information pages containing product information utilizing industry standard product identifiers in the information request when, in fact, such information pages may not exist prior to the request.

As used herein, network interface **208** enables server **200** to communicate with remote devices over communicatively coupled data networks. In one embodiment, network

interface **208** facilitates receipt of requests in any of a number of messaging protocol formats for information from remote clients. In one embodiment, the requesting client formulates a request in accordance with the HTTP messaging protocol by generating a uniform resource locator (URL) address including a resource identifier comprised of an industry standard product identifier (ISPID). Thus, network interface **208** is intended to represent any of a number of communication interfaces supporting any of a number of alternative communication/data networking protocols commonly known to those in the data networking arts. In particular, network interface **208** is intended to represent any of a number of wireline and wireless communication media through which these interfaces may communicate with remote clients, client subnetworks, and data network **106**. Similarly, input/output ports **210** enable server **200** to communicate with directly coupled devices such as, for example, disk drives, modems, and the like. Network interfaces and I/O ports are well known in the art and need not be described further.

Storage medium/device **206** is intended to represent any of a number of alternative storage media commonly known in the art. In one embodiment, for example, storage medium/device **206** is a memory device, or an array of such devices, such as a random access memory (RAM), flash memory device, or the like. In one embodiment, storage medium/device **206** is a magnetic storage media such as a hard disk, redundant array of inexpensive disks (RAID) system, re-writeable compact disk, tape media, or the like. In one embodiment, to be described more fully below, storage medium **206** includes executable instructions which, when executed by processor(s) **202** implement information server **203**,

mining agent **204** and, optionally, statistical database **205**. As will be described in greater detail below, information server **203** generates instructions to create an information page for provision to a requesting client in response to a request for an information page which may or may not exist. More specifically, upon receiving a request including a resource identifier for an information page/directory that does not exist, processor(s) **202** implementing information server **203** invoke an instance of mining agent **204** which determines if the received information request includes an resource identifier comprised of an industry standard product identifier (ISPID) and, if so, constructs and issues search commands in an effort to retrieve the requested information from accessible resources. As will be described more fully below, mining agent **204** may well access local and/or remote information resources via I/O ports **210** and network interface **208**, respectively.

In accordance with one embodiment of the present invention, processor(s) **202** implementing information server **203** and mining agent **204** work cooperatively to implement the many aspects of the present invention. As used herein, processor(s) **202** are intended to represent any of a number of microprocessors, microcontrollers, programmable logic devices (PLDs), application specific integrated circuits (ASICs) and the like known in the art. In accordance with the teachings of the present invention, processor(s) **202** implementing information server **203** respond to requests for information received from remote client(s) via data network **106** and network interface **208**. In particular, in accordance with one aspect of the present invention to be described more fully below, upon receiving a request for information which includes an industry standard product identifier, processor(s) **202**

implementing information server **203** determine that the requested information page does not exist, and invokes an instance of mining agent **204** which recognizes the industry standard product identifier (ISPID) in the received request. Accordingly, instead of immediately replying to the requesting client that the requested information page is not available, mining agent **204** constructs and issues search commands to accessible resources to access and retrieve information associated with the product identified by the industry standard product identifier contained within the resource identifier of the received request. Mining agent **204** provides information server **203** with any information identified associated with the industry standard product identifier. In response to the request for the information page that does not exist, processor(s) **202** implementing information server **203** dynamically generate the instructions necessary to create the requested information page for provision to the requesting client including at least a subset of the information provided on the product requested by mining agent **204**. In one embodiment, the instructions generated and issued by processor(s) **202** and information server **203** is HTML code. In an alternate embodiment, the instructions generated and issued by processor(s) **202** and information server **203** is JAVA code, or ActiveX code.

In accordance with the teachings of the present invention, mining agent **204**, searches accessible databases for information associated with the industry standard product identifier received in a request for information from a remote client. In one embodiment, for example, mining agent **204** generates instructions with which to query the accessible databases and includes the industry standard product identifier received from the remote client via network

interface **208** and processor(s) **202**. In one embodiment, the search commands are SQL commands. In one embodiment, the information resource is a local database, wherein mining agent **204** issues the search command via processor(s) **202** and I/O port **210**. In an alternate embodiment, mining agent **204** employs common gateway interface commands in addition to SQL search commands to access remote databases, e.g., database **118**, through a gateway server, e.g., server **117**. In one embodiment, mining agent **204** employs a hierarchical search of all accessible resources by first accessing local databases before accessing remote databases.

As alluded to above, in one embodiment, the search commands issued by mining agent **204** are SQL queries to a database. More specifically, mining agent **204** generates SQL commands including in one or more terms all or part of the industry standard product identifier parsed by and received from processor(s) **202**. In one embodiment, for example, mining agent **204** constructs and issues the following SQL command to retrieve information on property style, price, the number of bedrooms and baths for a particular property identified by the ISPID in the received request:

SELECT style, price, beds, baths FROM properties WHERE mlsid=BC57402.

In an alternate embodiment, mining agent **204** constructs and issues the following SQL command to communicatively coupled information resources to retrieve information on vehicle model, style, color and price for the automobile identified by the ISPID in the received request:

SELECT model, style, color, price FROM vehicle_stock WHERE vin=1J342M54789.

In one embodiment, the search conducted by mining agent **204** is typically completed during the window of latency commonly associated with the download of a web page from a remote server and, thus, with little to no perceptible delay to the end user. Thus, in accordance with the teachings of the present invention, a car dealership employing a server incorporating the teachings of the present invention effectively places their entire inventory on an accessible data network, wherein a customer simply enters a network address with the vehicle identification number (VIN) of the car of interest, and the server dynamically generates instructions to create the requested information page for provision to the requesting client. Accordingly, those skilled in the art will appreciate that the innovative server incorporating the teachings of the present invention may well be practiced in a number of alternate forms and embodiments without deviating from the spirit and scope of the present invention to enable vendors to make their products all the more accessible to clients, thereby increasing the number of leads and final sales.

Although depicted as executable code within storage medium **206**, those skilled in the art will appreciate that information server **203** and mining agent **204** may well take many alternate forms. In one alternate embodiment, for example, mining agent **204** is a separate functional block, embodied within an application specific integrated circuit (ASIC), a microcontroller, a special purpose processor, a software application and the like. Similarly, information server **203** may well be embodied as a special purpose processor, controller ASIC or PLD. Further, in alternate embodiments, the functionality of mining agent and information server **203** may well be embodied within a single functional element without

departing from the spirit and scope of the present invention. Accordingly, the foregoing example embodiments provided herein are to be regarded as illustrative and not exhaustive.

Given the foregoing architectural and functional descriptions of the first aspect of the present invention, those skilled in the art will recognize and appreciate the application of the present invention to network servers supporting e-commerce. Take, for example, a web site, i.e., a real estate information server. As alluded to above, prior art web sites supporting real estate databases typically required either a lengthy, uncomprehensible URL incorporating query strings, or multiple queries to identify and obtain information on a particular property, e.g., a first query to get to a realtor web site and a second query of their property database using, e.g., a multiple listing service (MLS) identifier for the property as a query term. A server incorporating the teachings of the present invention, however, will accept a data network request including the ISPID (e.g., the MLS identifier) in any of a number of alternate messaging protocols associated with the property for an information page, and selectively invoke mining agent **204** if the requested information page does not exist to search accessible information resources for information associated with the ISPID and reply by dynamically generating the instructions to create the requested information page for provision to the requesting client. That is, the teachings of the present invention facilitate the perception by the end user at the requesting client that each product identified by an industry standard product identifier has its own information site or information page when, in fact, such site or page does not necessarily exist prior to the server receiving the request.

Having introduced the architectural elements of the present invention with reference to **Figure 2**, the operation of the first aspect of the present invention will now be described with reference to **Figure 3**. However, for ease of explanation, and not limitation, the operation of a web server incorporating the teachings of the present invention will be developed in **Figure 3** with continued reference to **Figures 1** and **2**.

Accordingly, with reference to **Figure 3**, a method for managing the identification and dissemination of information content from an information server incorporated with the teachings of the present invention will be described within the context of an example information exchange. In particular, for purposes of explanation and not limitation, the teachings of the present invention will be described within the context of an example implementation wherein client **102** requests information from server **108** incorporating the teachings of the present invention in accordance with any of a number of messaging protocols. In accordance with one embodiment, for example, a user at a client computer issues a request for product information from server **108** incorporating the teachings of the present invention using the HTTP messaging protocol. In one embodiment, the request is in the form of a uniform resource locator (URL) comprising only a domain name and resource identifier comprised of an industry standard product identifier (ISPID). The request is passed to data network **106** via gateway server **104** to server **108**, which receives the request in block **302**. In particular network interface **208** of server **108** receives the request for information from communicatively coupled data network **106**, and passes the received request to processor(s) **202** which invoke an instance of information server **203**.

At block **303**, information server **203** determines whether the requested information page/directory identifier by the received request exists. If the requested information page/directory does exist, information server **203** provisions the instructions to create the requested information page/directory to the requesting client via processor(s) **202**, network interface **208** and data network **106**, block **306**.

If, however, information server **203** determines in block **303** that the requested information page/directory does not exist, processor(s) **202** implementing information server **203** determine whether the received request includes a resource identifier comprised of an industry standard product identifier (ISPID), block **304**. In one embodiment, for example, processor(s) **202** implementing information server **203** examine the request for information received in accordance with the HTTP protocol and determine whether the request includes an industry standard product identifier. One example of a request for information containing an industry standard product identifier is presented below in accordance with the HTTP messaging protocol, wherein an MLS identifier (real estate) is used to denote an web page:

http://www.homelist.com/BC57402

In accordance with the above HTTP example, www.homelist.com represents the domain name which uniquely identifies the target server (e.g., server **108**), while BC57402 is a resource identifier comprised of an ISPID denoting the requested information page, which in this example does not exist prior to receiving the request. In accordance with the teachings of the present invention, however, processor(s) **202** implementing information server **203**, upon determining that the requested information page does not exist, determines that the

requested information page denotes an industry standard product identifier (MLS code) which uniquely identifies a particular property of interest. In an alternate embodiment, the industry standard product identifier may well be used to denote a domain name (e.g., a particular server). One example in accordance with the HTTP messaging protocol is presented below, wherein an MLS identifier is used to denote a web site:

http://BC57402.homelist.com

In accordance with the above example, the ISPID is used to denote the domain, rather than a particular information page/directory.

If, in block **304**, information server **203** determines that the received request does not include a resource identifier comprised of an industry standard product identifier, information server **203** generates and issues an appropriate response to the requesting client, block **312**. In one embodiment, information server **203** generates instructions to create a default information page for provision to the requesting client. In an alternate embodiment, information server **203** issues an error response for provision to the requesting client.

If, however, processor(s) **202** implementing information server **203** recognize that the received request includes a resource identifier comprised of an industry standard product identifier (ISPID), information server **203** passes the received ISPID to mining agent **204**, which constructs and issues one or more query commands to accessible information resources, block **308**. In one embodiment, mining agent **204** includes at least a subset of the information contained within the received resource identifier, e.g., the ISPID, in the search command. In an alternate embodiment, mining agent **204** correlates the ISPID received in

the request to some other product identifier, which is used in the search command. In one embodiment, mining agent **204** issues the command to a local database, e.g., database **110** via I/O ports **210**. In alternate embodiments, mining agent **204** issues the search command to local and remote databases simultaneously via I/O ports **210** and network interface **208**, respectively. That is, if the requested information is not available from local sources, e.g., database **110**, mining agent **204** issues search commands to remote databases, e.g., database **118** via processor(s) **202**, network interface **208**, data network **106** and server **117**. One example embodiment of an information resource database is provided with reference to **Figure 6**.

Turning briefly to **Figure 6**, an example embodiment of a product database suitable for use in accordance with the teachings of the present invention is presented. In one embodiment, database **600** is suitable for use as local database **110** or remote database **118** in data network **100**. In accordance with the illustrated example embodiment, database **600** is shown comprising a number of data fields each containing information regarding a particular attribute of the product listed. In the illustrated example embodiment, product database **600** contains information regarding real estate. As shown, each of the properties listed are referenced by their unique industry standard product identifier, or MLS identifier, in field **602**. In fields **604** through **618**, various attributes of the product are listed for each of the properties identified in field **602**. In one embodiment, the listing agent **604**, architectural style **606**, price **608**, number of bedrooms and baths **610** and **612**, indication of air condition or garage **614** and **616** and the annual taxes are presented in product database **600**. Those

skilled in the art will appreciate that any of the product criteria listed in database **600** is searchable. Thus, while mining agent **204** generates search commands including the ISPID (i.e., the MLS identifier of database **600**), those skilled in the art will appreciate that other search terms may well be used without deviating from the spirit and scope of the present invention.

In block **310**, processor(s) **202** implementing an instance of mining agent **204** determines whether the search of accessible databases was successful, i.e., whether the requested information identified by the industry standard product identifier was available from local and/or remote information sources accessible from server **108**. In one embodiment, if the information is not accessible, mining agent **204** so informs processor(s) **202** and information server **203**, which issue an appropriate response to the requesting client **102**, block **312**. As provided above, in one embodiment information server **203** issues a response informing the user that the information is not available, block **312**. In an alternate embodiment, processor(s) **202** issue an invalid address response to the requesting client in accordance with the messaging protocol utilized. In alternate embodiments, processor(s) **202** and information server **203** may well generate and issue to the requesting client instructions to provision a default information page when the requested information is not available.

If the search of accessible resources conducted by mining agent **204** in block **310** is successful, mining agent **204** passes the retrieved information to processor(s) **202** implementing information server **203**, which generates instructions to create the requested information page for provision to the requesting client **102**, block **314**. That is not to say,

however, that processor(s) **202** implementing information server **203** wait until the search is complete to begin to provision the information page at the remote client **102**. In one embodiment, for example, processor(s) **202** begin issuing commands to requesting client **102** immediately, enabling a browser operating on client **102** to begin to render an information page within which the information on the product will be displayed once mining agent **204** receives a response from queried databases.

Those skilled in the art will appreciate, from the foregoing, that a server incorporated with the teachings of the present invention dynamically generates a custom information page in response to receiving a request including a resource identifier comprised of an ISPID for an information page/directory that may or may not exist, giving the end user the perception that each product identified by an ISPID has a dedicated information page when, in fact, it may not. The innovation herein described facilitates this perception of the end user, while enabling the commerce enterprise to utilize their preexisting product databases. Thus, the present invention represents an improvement in information management and content delivery by making product information more readily available without requiring wholesale changes in how such information is stored and maintained at the server.

Having described this first aspect of the present invention with reference to **Figures 1-3**, another aspect of the present invention will be described with reference to **Figure 5**. That is, **Figure 5** illustrates an example method for compiling and maintaining a statistical history of the marketing efforts resulting in requests of the information server **203**. In one embodiment, for example, a commercial enterprise utilizes different marketing codes in their

marketing literature when referencing a resource identifier for an information page/directory associated with a particular product. When an end user accesses the information using the denoted network address including the marketing code, processor(s) **202** implementing information server **203** invoke an instance of statistical database **205** incorporating the teachings of the present invention to correlate the marketing code with the source marketing material and tracks the effectiveness of particular marketing materials.

Accordingly, with reference to **Figure 5**, the method begins as before when server **108** incorporating the teachings of the present invention receives a request for information from remote client **102**, block **502**. As described above, the request is received from data network **106** via network interface **208** and processor(s) **202**. In block **504**, processor(s) **202** implementing information server **203** determine whether the received request includes a marketing code. In one embodiment, information server **203** recognizes any of a number of alternative separate marketing codes, as provided in **Table 1**, below. In one embodiment, information server **203** may well assume that any additional identifiers are marketing codes. In alternate embodiments, information server **203** looks up the marketing code to correlate it with the marketing material in order to further refine and customize the information provisioned to the requesting client. In one embodiment, for example, information server **203** issues instructions to provision within the requested information page/directory a "thank you" for using the source marketing materials, e.g., a buyers guide.

Marketing Code	Corresponding Marketing Source
P	Print Media
AG #	A Particular Sales Agent
R	Radio Advertising

T	Television Advertising
I	Internet Advertising
BG	Buyers Guide (particular publication)

Table 1: Marketing Codes and Associated Sources

In accordance with the illustrated example embodiment, information server **203** recognizes five (5) different marketing codes, one each associated with print advertising, sales person advertising/referrals, radio advertising, television advertising and Internet advertising. Thus, an example request for information in accordance with the HTTP protocol might look like the following URL: http://www.homelist.com/BC54705BG, which represents that the user requesting information on the product identified by ISPID BC57403 learned of the information page through an advertisement in a particular publication, in this case a buyers guide. In the foregoing example embodiment, simple codes are used to illustrate the teachings of the present invention. Nonetheless, those skilled in the art will appreciate that marketing codes of greater or lesser complexity may well be used depending on the amount and detail of information the hosting enterprise requires. Accordingly, the use of marketing codes of greater or lesser complexity in accordance with the teachings of the present invention is anticipated by the teachings herein.

If, in block **504**, it is determined that the received request for information does not contain any marketing codes, the process continues with block **303** of the method illustrated in **Figure 3**. Alternatively, if in block **504** processor(s) **202** implementing information server **203** identify marketing codes in the received request, and invoke an instance of statistical database

205 which updates any of a number of statistics maintained regarding such marketing codes in block **506**. In one embodiment, for example, processor(s) **202** implementing statistical database **205** update the database with information regarding the type of marketing code, when it was received, where it was received from, and the like. In one embodiment, once the marketing database has been updated, the process continues with block **303** of the method described above in **Figure 3**.

In accordance with one aspect of the present invention, a marketing evaluation report is automatically generated periodically by a server incorporating the teachings of the present invention. In one embodiment, the report generation function is a function of information server **203** selectively invoked by processor(s) **202**. The frequency of such reporting is controlled by the hosting enterprise operating the server incorporating the teachings of the present invention, e.g., server **200**. In one embodiment, server **200** automatically generates a marketing evaluation report on a periodic basis, e.g., a daily, weekly, monthly, quarterly or yearly basis. In an alternate embodiment, such evaluation reports may be automatically generated on demand. One example embodiment of an automatically generated marketing report is provided with reference to **Figure 7**.

As shown in **Figure 7**, server **200** automatically generates a marketing evaluation report **700** for the period identified in field **701** summarizing marketing information associated with several different marketing codes. In one embodiment, for example, marketing report **700** identifies several different statistics compiled and maintained by processor(s) **202** in accordance with information server **203** and statistical database **205**. In one embodiment, for

example statistics on the effectiveness of product agents **702**, television advertising **704**, radio advertising **706**, Internet advertising **708** and print media **709**, are maintained with different summary information **710** for each. In one embodiment, the summary information **710** provided for each of the illustrated marketing codes includes the number of hits generated (e.g., the number of times a request for information is received by information server **203**), the number of requests for further information, requests for telephone call follow up and the price range of the products accessed using the particular marketing code. Accordingly, while agent 0 generated a large number of hits, those hits resulted in only 25 requests for telephone call follow up, while agent 112 only generated 250 hits to the web site, it resulted in 50 requests for follow up telephone calls. Just as the effectiveness of particular agent marketing can be compared and contrasted, so, too, can the effectiveness of different media, as television **704** can be compared to radio **706** and the Internet **708**. Those skilled in the art will appreciate that marketing report **700** is but one example, and that marketing reports with greater or lesser complexity may well be generated by server **200** without deviating from the spirit and scope of the present invention. For example, statistical analysis may well be employed to identify under performing marketing campaigns, cyclical changes in marketing effectiveness corresponding to season, etc.

In addition to the example embodiments presented above, an alternate embodiment of a server incorporating the teachings of the present invention is presented with reference to the block diagram of **Figure 4**. More specifically, **Figure 4** illustrates a block diagram of server **400** including the innovative mining agent **204** associated with one aspect of the present

invention introduced above. As shown, server **400** comprises processor(s) **402** with associated cache(s) **404**, bus bridge **410**, network interfaces **416**, memory subsystem **408**, video memory **406** and display device **407**, and mining agent **204** incorporated with the teachings of the present invention, coupled as shown. As with the embodiments presented above, mining agent **204** is intended to represent any of a number of alternative embodiments, including embodiments wherein mining agent **204** is not a separate functional entity, but rather executable instructions stored on storage medium/device **208** and selectively executed by one or more of processor(s) **402**. In accordance with the teachings of the present invention, processor(s) **402** implementing the innovative information server, mining agent **204** and accessible information resources cooperatively function to provide a requesting client with information associated with an industry standard product identifier (ISPID) received in a resource identifier of a request for an information page/directory and/or an information server.

In addition to those elements enumerated above, server **400** also includes storage medium/device **208**, read only memory **412**, keyboard and cursor control device **414** and input/output (I/O) ports **417** communicatively coupling peripheral devices such as, for example, a hard copy output device **418** and/or database **110**. In one embodiment, server **400** is a computer system having a large amount of storage space (typically on the order of hundreds of gigabytes or terabytes), with multiple network interfaces **416** which support multiple simultaneous virtual connections between clients **102** and communicatively coupled data networks, e.g., data network **106**. Accordingly, network interface **416** is intended to represent a number of alternative communication interfaces which enable server **400** to

communicate with remote clients via any of a number of alternative communication technologies. Except for the teachings of the present invention, described above, elements **402-418**, **208** and **110** are representative of those commonly known in the art. Thus, those skilled in the art will appreciate that servers of greater or lesser complexity may well be substituted for server **400** without deviating from the spirit and scope of the present invention.

In another embodiment of the present invention, the teachings of the present invention for content management and delivery are embodied in software. Accordingly, **Figure 8** illustrates an example storage medium **800** having stored thereon machine executable instructions **802** which, when processed by a controller transforms an appropriately configured machine executing machine executable instructions **802** into a server incorporating the teachings of the present invention. In accordance with the illustrated example embodiment of **Figure 8**, storage medium **800** is intended to represent any of a number of alternative storage media including, but not limited to, floppy disks, magnetic tape, compact disk, digital versatile disk, optical disks, and the like. Further, those skilled in the art will appreciate that the machine executable instructions need not be located within the machine executing the instructions, but may be accessed from communicatively coupled devices.

In light of the foregoing, those skilled in the art will appreciate that the present invention not only provides for improved information management and delivery, but also includes innovative tracking and reporting features from which a host commercial enterprise can identify and quantify the source of referrals to the products supported by this innovative

server. In addition to the embodiments described above, those skilled in the art will appreciate that the teachings of the present invention may well be integrated within a single integrated circuit (not shown). That is, those skilled in the art will appreciate that advances in IC fabrication technology now enable complex systems to be integrated onto a single IC. Thus, in accordance with one embodiment of the present invention, the teachings of the present invention may be practiced within an application specific integrated circuit (ASIC), programmable logic device (PLD), microcontroller, processor and the like.

While the many innovative features and aspects to the present invention have been described in terms of the above illustrated embodiments, those skilled in the art will recognize that the invention is not limited to the embodiments described. The present invention can be practiced with modification and alteration within the spirit and scope of the appended claims. In particular, the present invention may be practiced with other features and/or feature settings. Particular examples of other features include but are not limited to transaction communication protocols and architectural attributes. Accordingly, the description is to be regarded as illustrative instead of restrictive on the present invention.

Thus, alternate embodiments of the many innovative aspects of a method, apparatus and system for improved content management and delivery has been described.

CLAIMS

What is claimed is:

1. An apparatus comprising:

a storage device having stored therein a plurality of executable instructions; and

a processor, coupled to the storage device, to execute the plurality of instructions to implement an information server which, upon receiving a request including a resource identifier for an information page/directory that may or may not exist, constructs and issues one or more queries including the resource identifier to retrieve the requested information and dynamically generates instructions to create the requested information page for provision to a requesting client if the information page/directory does not exist.

2. The apparatus of claim 1, wherein if the information page/directory does exist, the information server provisions the requested information page/directory to the requesting client.

3. The apparatus of claim 1, wherein the resource identifier is comprised of an industry standard product identifier (ISPID).

4. The apparatus of claim 3, wherein the industry standard product identifier is a multiple listing service (MLS) identifier.

5. The apparatus of claim 3, wherein the industry standard product identifier is a vehicle identification number (VIN) identifier.

6. The apparatus of claim 3, wherein the information server responds to requests for an information page comprised of the ISPID, whether the requested information page exists prior to the request or not.

7. The processor of claim 1, wherein the resource identifier further includes a marketing code.

8. The apparatus of claim 7, wherein the resource identifier containing the industry standard product identifier and marketing code is a uniform resource locator (URL).

9. The apparatus of claim 7, wherein the information server further includes a statistics function to compile and maintain statistics using the marketing code of received requests.

10. The apparatus of claim 9, wherein the information server further includes a report function which periodically, automatically compiles and generates a marketing report based, at least in part, on the compiled marketing statistics.

11. The apparatus of claim 9, wherein the information server further includes a report function which on demand, automatically compiles and generates a marketing report based, at least in part, on the compiled statistics.

12. A method for managing information delivery, the method comprising:

receiving a request for an information page from a client including a resource identifier for an information page/directory;

determining whether the information page/directory exists; and

automatically constructing and issuing one or more queries including the resource identifier to retrieve the requested information from accessible resources if the information page/directory does not exist.

13. The method of claim 12, wherein the resource identifier is comprised of an industry standard product identifier.

14. The method of claim 13, wherein the industry standard product identifier is a multiple listing service (MLS) identifier.

15. The method of claim 12, further comprising provisioning the requested information page/directory to the requesting client if the information page/directory does exist.

16. The method of claim 12, further comprising dynamically generating instructions to create the requested information page and provisioning the generated instructions to the requesting client if the information page/directory does not exist.

17. The method of claim 12, wherein the request is a uniform resource locator (URL).

18. The method of claim 12, wherein the received resource identifier includes a marketing code.

19. The method of claim 18, further comprising:

compiling and maintaining a history of received marketing codes; and

calculating statistical reports of the received marketing codes.

20. The method of claim 19, further comprising periodically, automatically compiling and generating a statistical report depicting marketing effectiveness based, at least in part, on the calculated statistical reports of the received marketing codes.

21. A storage medium having stored therein a plurality of executable instructions which, when executed, implement an information server having a plurality of functions, including a function to construct and issue queries to accessible resources in response to a received request including a resource identifier for an information page/directory that may or may not exist, and to dynamically generate instructions to create the requested information page/directory for provision to a requesting client if the information page/directory does not exist.

22. The storage medium of claim 21, further comprising a function to provision the requested information page/directory to the requesting client if the information page/directory does exist.

23. The storage medium of claim 21, wherein the resource identifier is comprised of an industry standard product identifier (ISPID).

24. The storage medium of claim 23, wherein the information server responds to requests comprised of an ISPID for an information page/directory whether the requested information page/directory exists prior to the request or not.

25. The storage medium of claim 21, wherein the information server includes a function to identify, compile and maintain a statistical history of marketing codes received in information page requests.

26. The storage medium of claim 25, wherein the information server includes a report generation function which periodically and/or on demand automatically generates a report including the compiled statistical history.

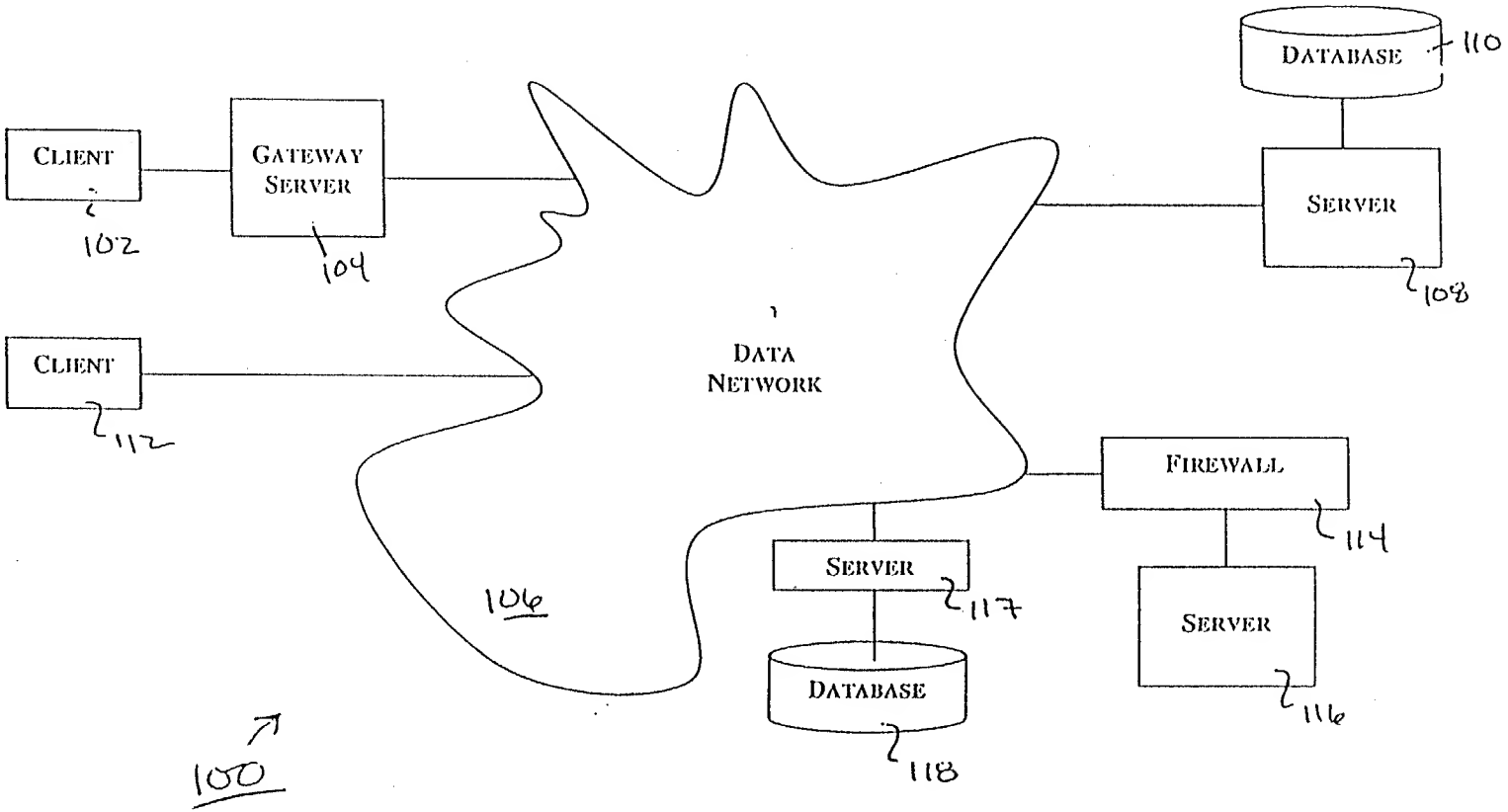
Express Mail Label No.: EL034435616US

ABSTRACT OF THE DISCLOSURE

An apparatus comprising a storage medium and a communicatively coupled processor are presented. The storage medium has stored therein a plurality of executable instructions which, when executed, implement an information server which, upon receiving a request including a resource identifier for an information page that may or may not exist, constructs and issues commands to retrieve the requested information and dynamically generates instructions to create the requested information page for provision to a requesting client if the information page does not exist.

Express Mail Label No. EL034435616US Date of Deposit: June 30, 2003

FIG. 1


DATABASE
110
CLIENT
102
GATEWAY SERVER
104
SERVER
108
DATA NETWORK
CLIENT
112
FIREWALL
114
SERVER
117
106
SERVER
116
DATABASE
118
100

SOFTEC EXHIBIT

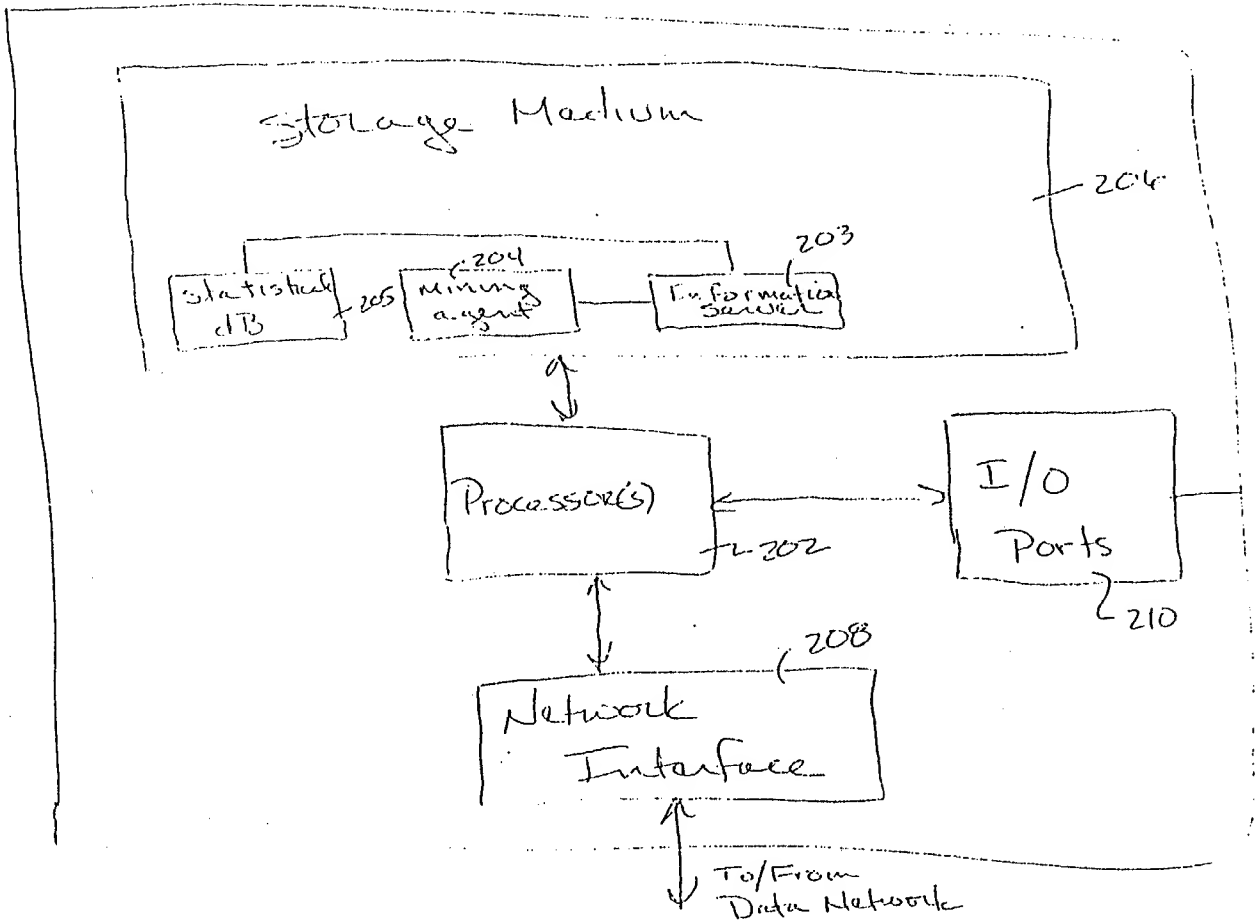


FIG. 2

Fig. 3

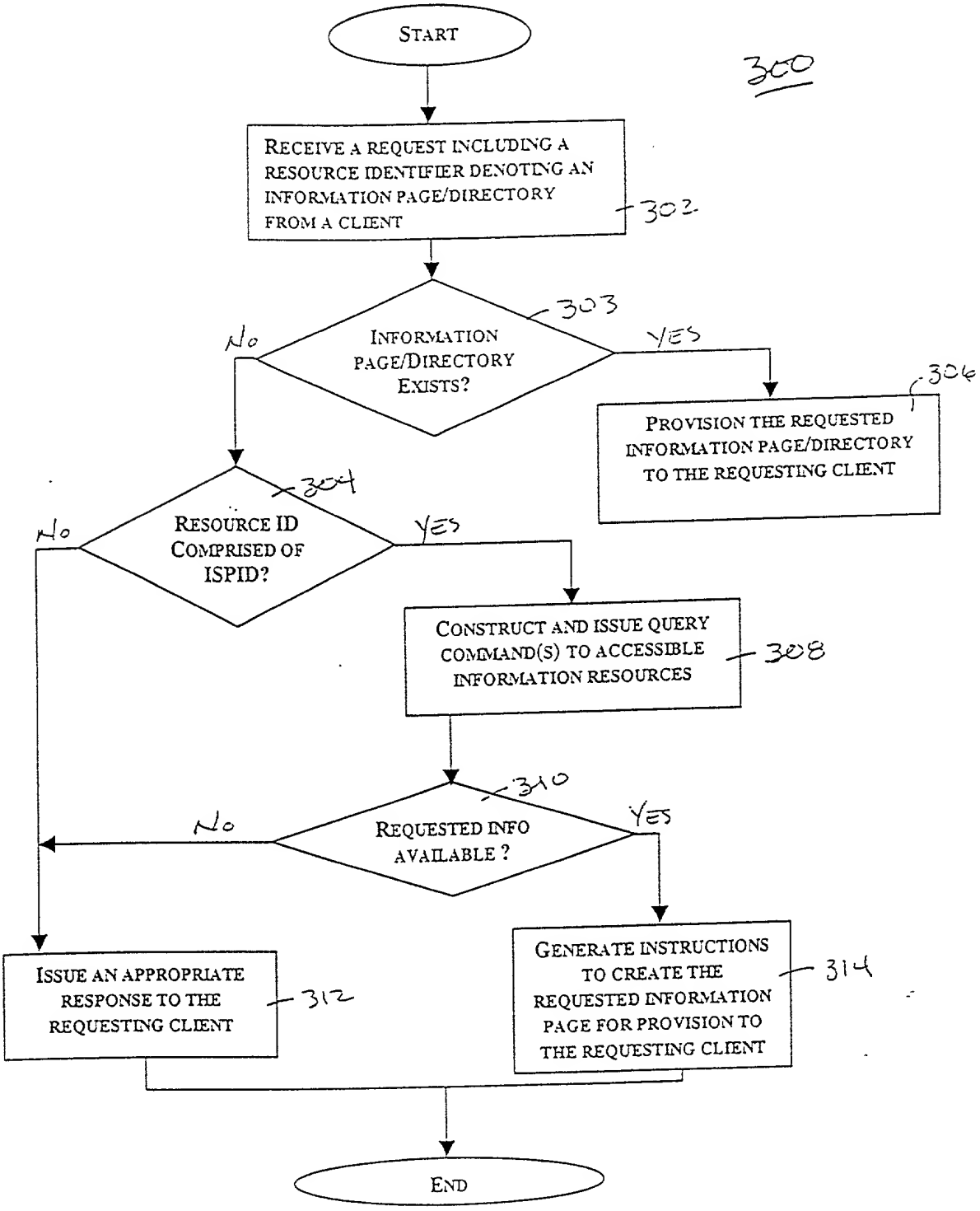

START
300
RECEIVE A REQUEST INCLUDING A RESOURCE IDENTIFIER DENOTING AN INFORMATION PAGE/DIRECTORY FROM A CLIENT
302
INFORMATION PAGE/DIRECTORY EXISTS?
303
No
YES
PROVISION THE REQUESTED INFORMATION PAGE/DIRECTORY TO THE REQUESTING CLIENT
306
RESOURCE ID COMPRISED OF ISPID?
304
No
YES
CONSTRUCT AND ISSUE QUERY COMMAND(S) TO ACCESSIBLE INFORMATION RESOURCES
308
REQUESTED INFO AVAILABLE ?
310
No
YES
ISSUE AN APPROPRIATE RESPONSE TO THE REQUESTING CLIENT
312
GENERATE INSTRUCTIONS TO CREATE THE REQUESTED INFORMATION PAGE FOR PROVISION TO THE REQUESTING CLIENT
314
END

FIG. 4

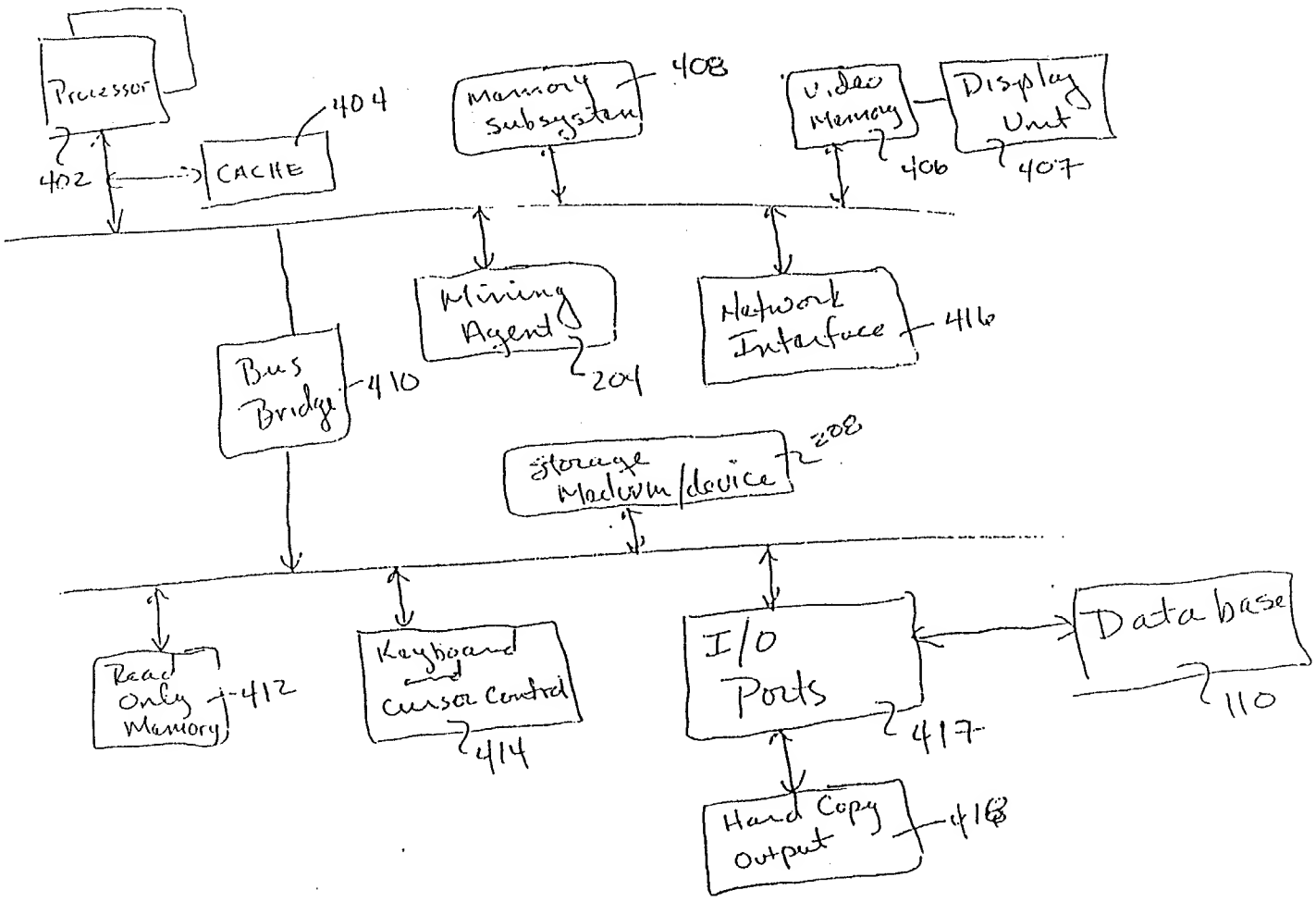

400
Processor
402
CACHE
404
Memory subsystem
408
Video Memory
406
Display Unit
407
Mining Agent
204
Network Interface
416
Bus Bridge
410
storage Medium/device
208
Read Only Memory
412
Keyboard and cursor Control
414
I/O Ports
417
Data base
110
Hard Copy output
418

FIG. 5

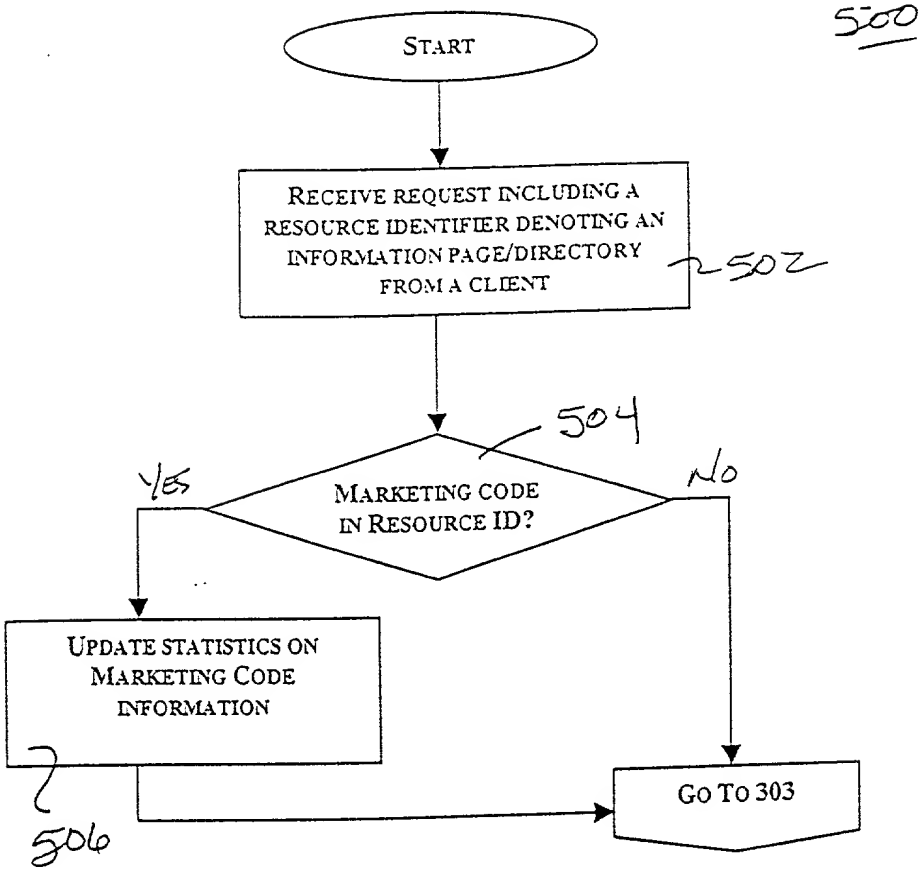
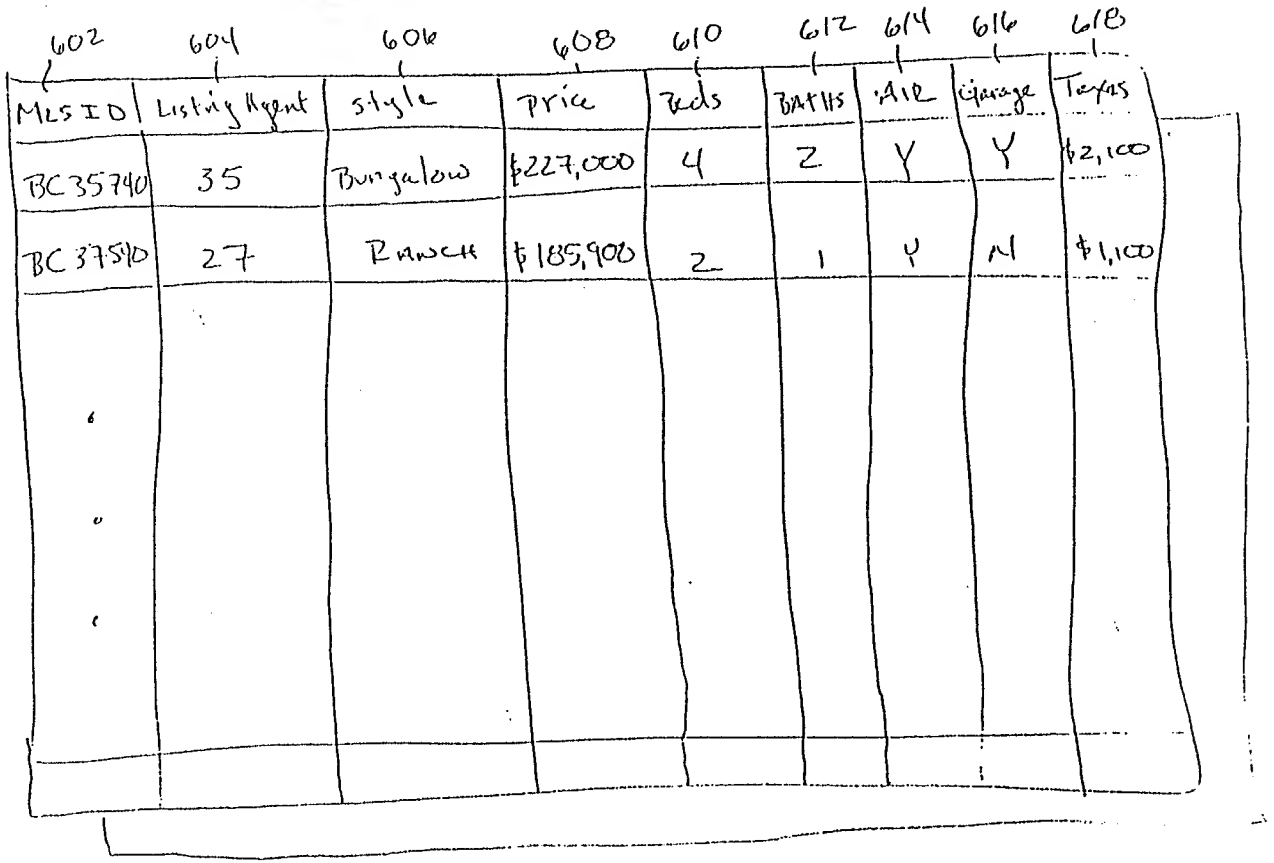

500
START
RECEIVE REQUEST INCLUDING A RESOURCE IDENTIFIER DENOTING AN INFORMATION PAGE/DIRECTORY FROM A CLIENT
502
504
MARKETING CODE IN RESOURCE ID?
YES
NO
UPDATE STATISTICS ON MARKETING CODE INFORMATION
506
GO TO 303

FIG. 6

600



602 MLS ID	604 Listing Agent	606 Style	608 Price	610 Beds	612 Baths	614 Air	616 Garage	618 Taxes
BC35740	35	Bungalow	$227,000	4	2	Y	Y	$2,100
BC37510	27	Ranch	$185,900	2	1	Y	N	$1,100

MARKETING EVALUATION REPORT:

Period Ending: December 31, 1998 - 701

700

Agent 0: 1,800 hits
450 requests for information
25 requests for telephone call follow up
$125,000-$175,000 product price range

710

702

:

Agent 112: 350 hits
250 requests for information
50 requests for telephone call follow up
$1,500,000-$2,250,000 product price range

704 Television Advertising
23,000 hits
230 requests for information
0 requests for telephone call follow up
$14,000-$2,250,000 price range

706 Radio Advertising
2300 hits
23 requests for information
0 requests for telephone call follow up
$14,000-$150,000 price range

708 Internet Advertising
2450 hits
1400 requests for information
140 requests for telephone call follow up
$175,000-$450,000 price range

709 Print Advertising
1750 hits
17 requests for information
4 requests for telephone call follow up
$275,000-$450,000 price range

FIG. 7

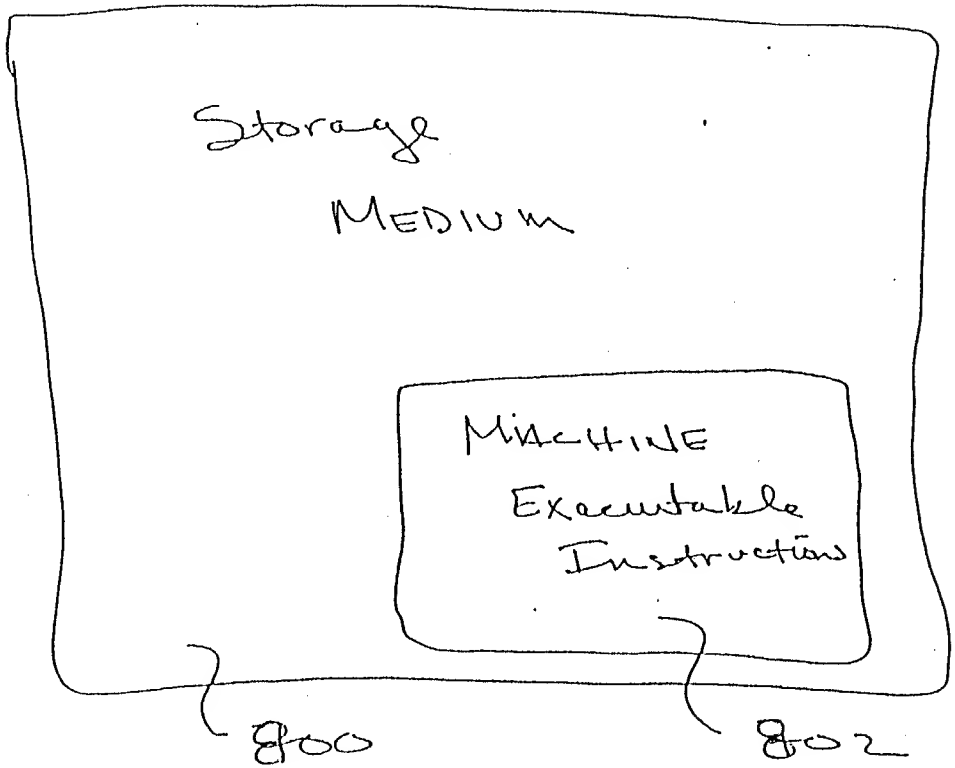


FIGURE 8

Attorney's Docket No.: 03869.P001 Patent

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below, next to my name.

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

METHOD, APPARATUS AND SYSTEM FOR IMPROVED CONTENT MANAGEMENT AND DELIVERY

the specification of which

XX is attached hereto.
___ was filed on _____ as
United States Application Number _____
or PCT International Application Number _____
and was amended on _____.
(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment referred to above. I do not know and do not believe that the claimed invention was ever known or used in the United States of America before my invention thereof, or patented or described in any printed publication in any country before my invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, and that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months (for a utility patent application) or six months (for a design patent application) prior to this application.

I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d), of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No

I hereby claim the benefit under title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below

(Application Number)	Filing Date
(Application Number)	Filing Date

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Number)	Filing Date	(Status -- patented, pending, abandoned)
(Application Number)	Filing Date	(Status -- patented, pending, abandoned)

I hereby appoint Farzad E. Amini, Reg. No. P42,261; Aloysius T. C. AuYeung, Reg. No. 35,432; Amy M. Armstrong, Reg. No. P42,265; William Thomas Babbitt, Reg. No. 39,591; Carol F. Barry, Reg. No. P41,600; Jordan Michael Becker, Reg. No. 39,602; Bradley J. Bereznak, Reg. No. 33,474; Michael A. Bernadicou, Reg. No. 35,934; Roger W. Blakely, Jr., Reg. No. 25,831; Gregory D. Caldwell, Reg. No. 39,926; Kent M. Chen, Reg. No. 39,630; Lawrence M. Cho, Reg. No. 39,942; Yong S. Choi, Reg. No. P43,324; Thomas M. Coester, Reg. No. 39,637; Roland B. Cortes, Reg. No. 39,152; Barbara Bokanov Courtney, Reg. No. P42,442; Michael Anthony DeSanctis, Reg. No. 39,957; Daniel M. De Vos, Reg. No. 37,813; Robert Andrew Diehl, Reg. No. 40,992; Tarek N. Fahmi, Reg. No. 41,402; James Y. Go, Reg. No. 40,621; Richard Leon Gregory, Jr., P42,607; Dinu Gruia, Reg. No. P42,996; David R. Halvorson, Reg. No. 33,395; Thomas A. Hassing, Reg. No. 36,159; Phuong-Quan Hoang, P41,839; Willmore F. Holbrow III, Reg. No. P41,845; George W Hoover II, Reg. No. 32,992; Eric S. Hyman, Reg. No. 30,139; Dag H. Johansen, Reg. No. 36,172; William W. Kidd, Reg. No. 31,772; Tim L. Kitchen, Reg. No. P41,900; Michael J. Mallie, Reg. No. 36,591; Andre L. Marais, under 37 C.F.R. § 10.9(b); Paul A. Mendonsa, Reg. No. 42,879; Darren J. Milliken, P42,004; Thinh V. Nguyen, P42,034; Kimberley G. Nobles, Reg. No. 38,255; Michael A. Proksch, Reg. No. 43,021; Babak Redjaian, P42,096; James H. Salter, Reg. No. 35,668; William W. Schaal, Reg. No. 39,018; James C. Scheller, Reg. No. 31,195; Anand Sethuraman, Reg. No. P43,351; Charles E. Shemwell, Reg. No. 40,171; Maria McCormack Sobrino, Reg. No. 31,639; Stanley W. Sokoloff, Reg. No. 25,128; Geoffrey T. Staniford, P43,151; Judith A. Szepesi, Reg. No. 39,393; Vincent P. Tassinari, Reg. No. P42,179; Edwin H. Taylor, Reg. No. 25,129; George G. C. Tseng, Reg. No. 41,355; Lester J. Vincent, Reg. No. 31,460; John Patrick Ward, Reg. No. 40,216; Stephen Warhola, Reg. No. P43,237; Ben J. Yorks, Reg. No. 33,609; and Norman Zafman, Reg. No. 26,250; my attorneys, of BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP, with offices located at 12400 Wilshire Boulevard, 7th Floor, Los Angeles, California 90025, telephone (310) 207-3800, and James R. Thein, Reg. No. 31,710, my patent attorney; with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith.

Full Name of Sole/First Inventor STEPHEN C. RODERICK

Inventor's Signature _____ Date 1/11/99

Residence Corvallis, Oregon (City, State) Citizenship United States (Country)

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